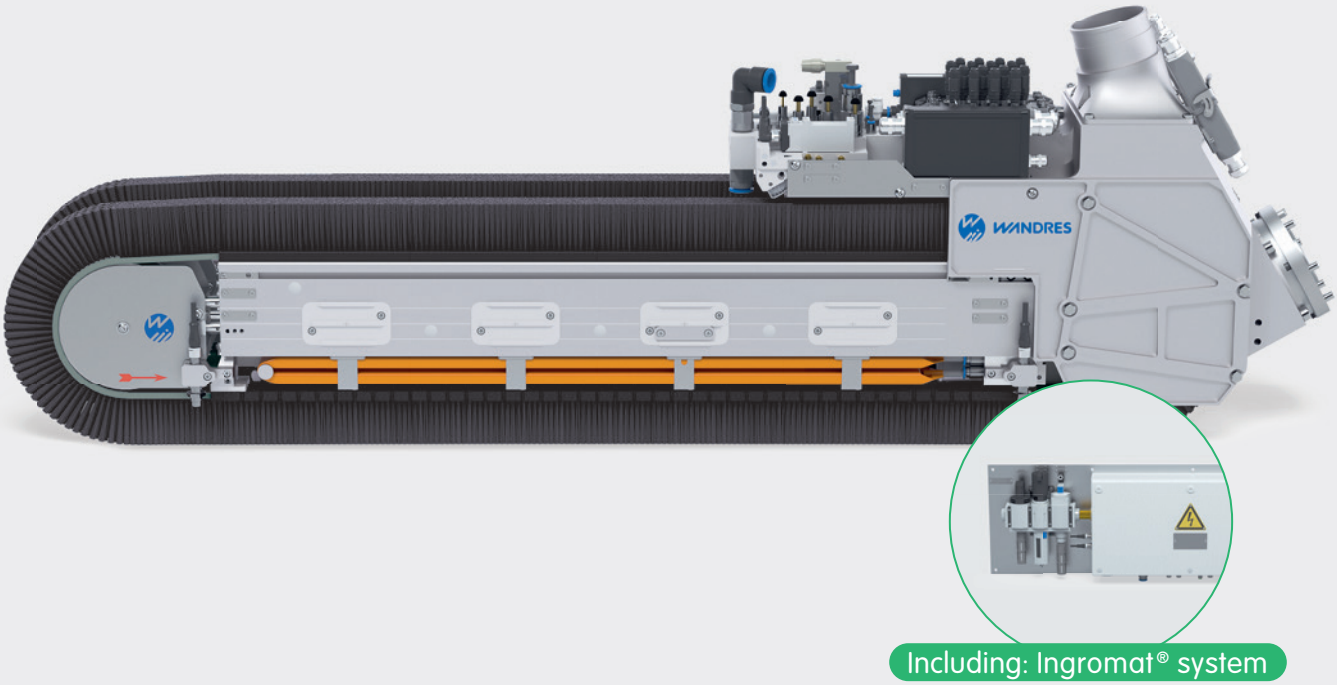
D-Line

# Robot Sword Brush Laura 160®




Including: Ingromat® system

## For the cleaning of bodyshells and exterior parts prior to painting or coating

- Dual linear brush
- Micro-moistening
- Self-cleaning system
- Flexible buffer
- Air technology: Tornado Nozzles
- Robot flange with quick change system

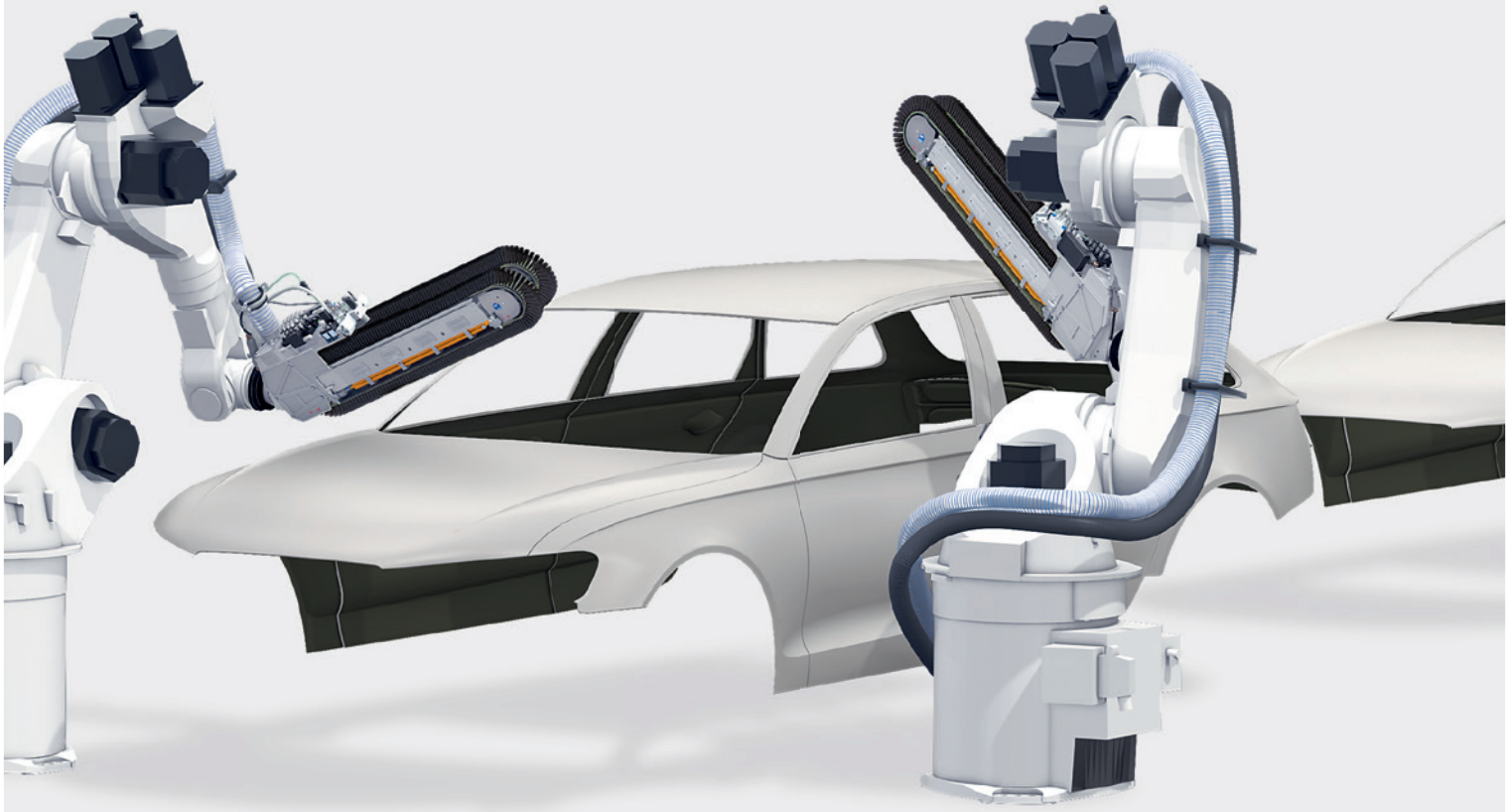
**Optional:**

- Ionising bar

Surface Cleaning Technology

WANDRES

# High First Time Quality with fast cycle times

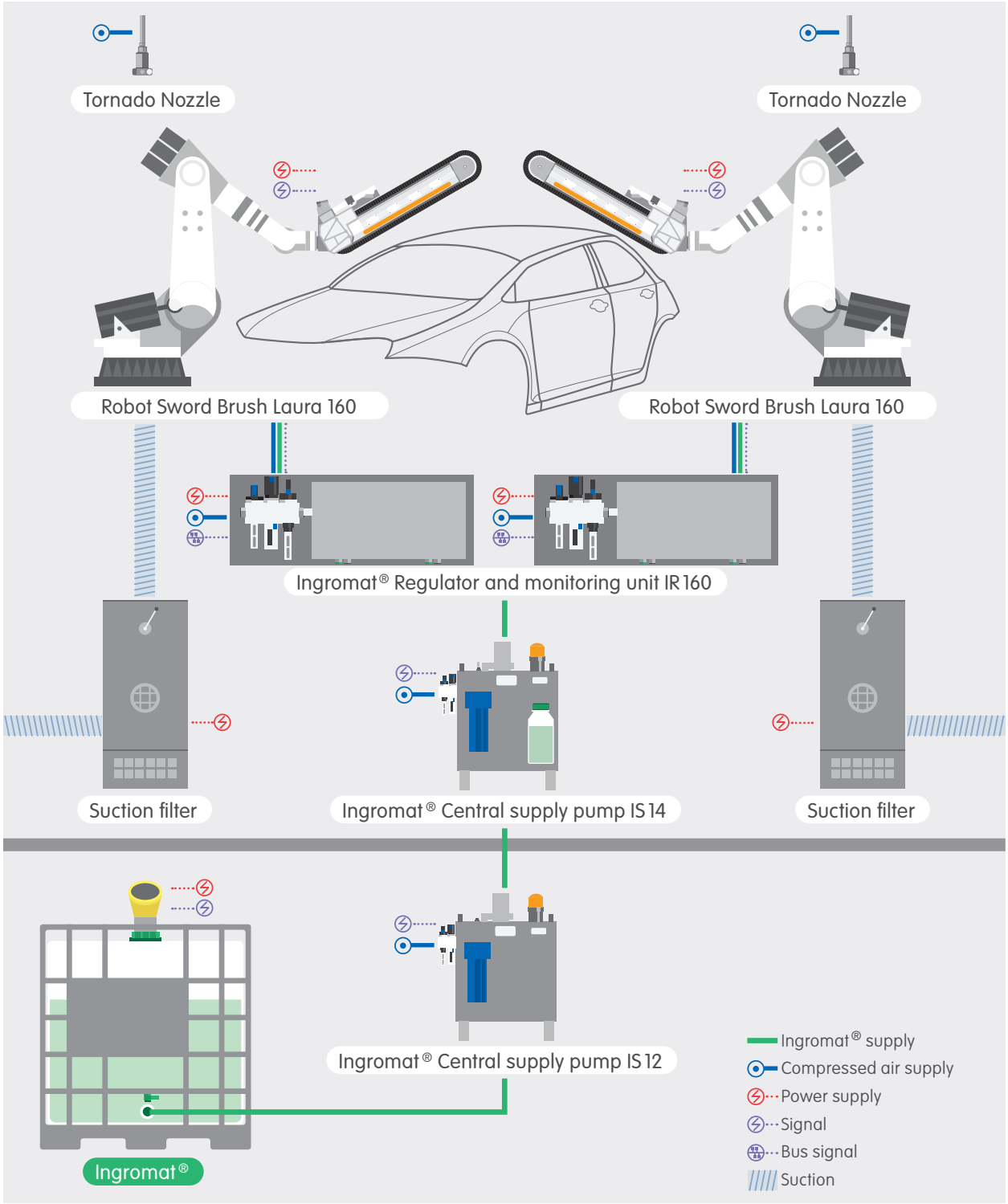


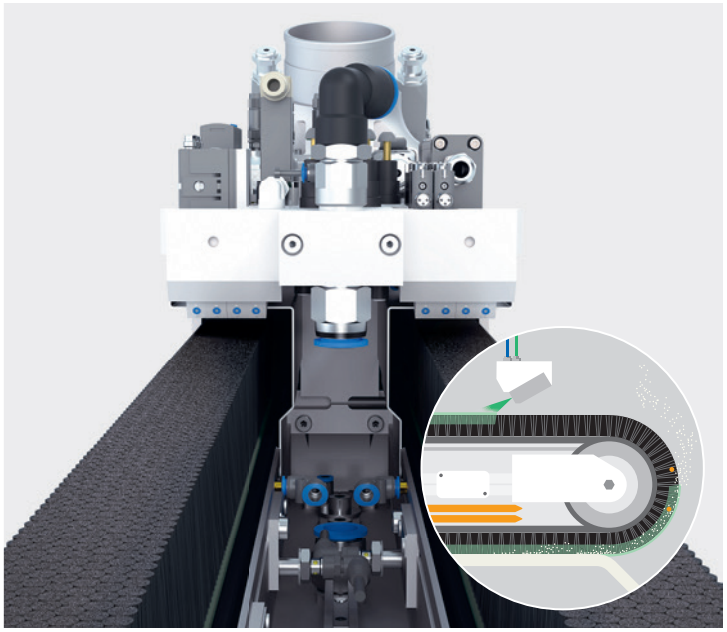
The **Robot Sword Brush Laura 160®** precisely cleans bodyshells and exterior parts prior to painting and consistently maintains a high-quality cleaning performance even at fast cycle times. This insures a faultless painting process with a high first time pass while ensuring process stability in continuous operations and reducing costly rework. Precision robot guidance of the end of arm tool (EOAT) means cleaning has razor-sharp accuracy, for instance along wet PVC seam sealing. In new plants, the gelling oven can often be dispensed with, resulting in substantial savings on energy and a considerable reduction in carbon emissions. The combination of air technology and brush cleaning technology delivers an efficient cleaning procedure in just one process step. Two linear brushes with polyamide filaments run in parallel and remove even the finest dust without wetting the surface. Tornado Nozzles rotate between the two linear brushes, removing particles from recessed areas such as door handle grips with pulsating jets of compressed air.

# Easy process integration

The Robot Sword Brush can be integrated into existing as well as new lines with different configurations. Shown below, for instance, is a version with two robots. Depending on the application, however, installing three or four robots can make sense.

Wandres supplies the entire Ingromat® system together with the appropriate suction system. The mounting flange is compatible with all common robot types. A Tornado Nozzle is installed for the cyclical cleaning of the Robot Sword Brush.

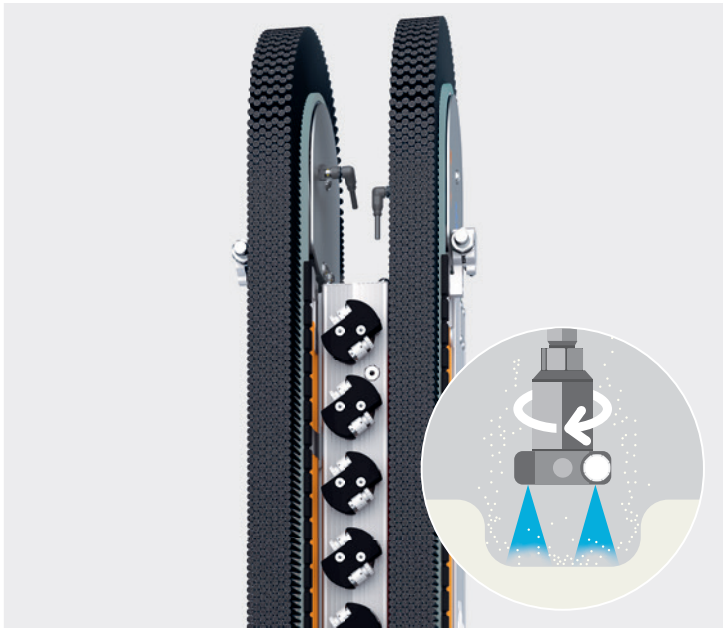




## Efficient brush cleaning

### Micro-moistened filaments

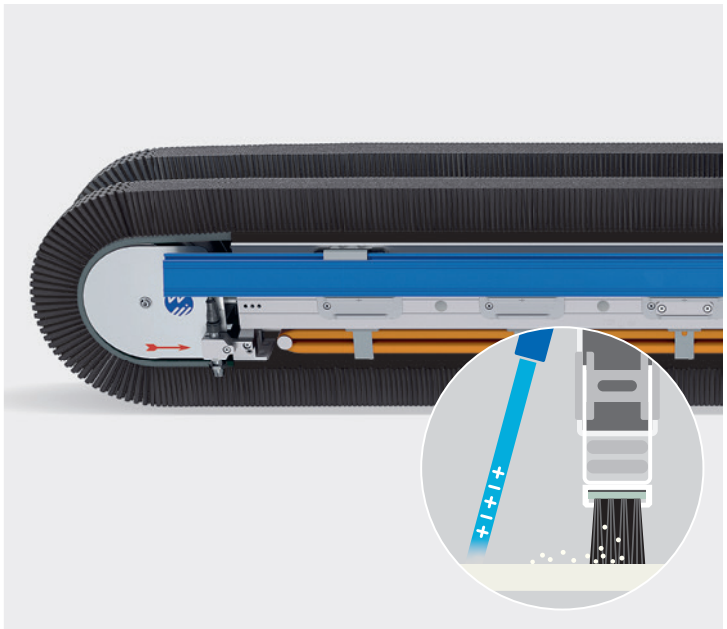
The sprayer applies a thin film of Ingromat® antistatic cleaning agent onto the filament tips. Thanks to the micro-moistening, even ultrafine particles are bound to the filaments and safely propelled towards a suction system. Surfaces remain dry after cleaning and can be painted immediately afterwards. An adjustable rack system ensures that the linear brushes are constantly undergoing self-cleaning, as a result of which high-performance cleaning results can be maintained in continuous operations.



## Powerful air technology

### Tornado Nozzles Janus 50 D

The rotating Tornado Nozzles Janus 50 D with variable speed control expel compressed air at high velocity. Particles and dust are powerfully dislodged from grooves such as roof seams and recessed grips. The circular cleaning areas of the nozzles overlap, ensuring the surface is cleaned seamlessly and extremely efficiently. The diameter of the nozzle aperture is adjustable from 0 bis 1.6 mm and, consequently, the compressed air usage can be optimally adjusted and minimised.



Optional

## Static electricity

### Ionising bar

As an option, ionising bars can be fitted on both sides of the Robot Sword Brush. This is particularly helpful for the cleaning of plastic surfaces. Two ionising bars, one placed at the infeed and one at the outfeed side, increase the cleaning effect by reducing electrostatic attraction causing particles to adhere to surfaces. Any potential electrostatic charge of the surface is neutralised.

# Adapts perfectly to complex geometries and different car body shapes

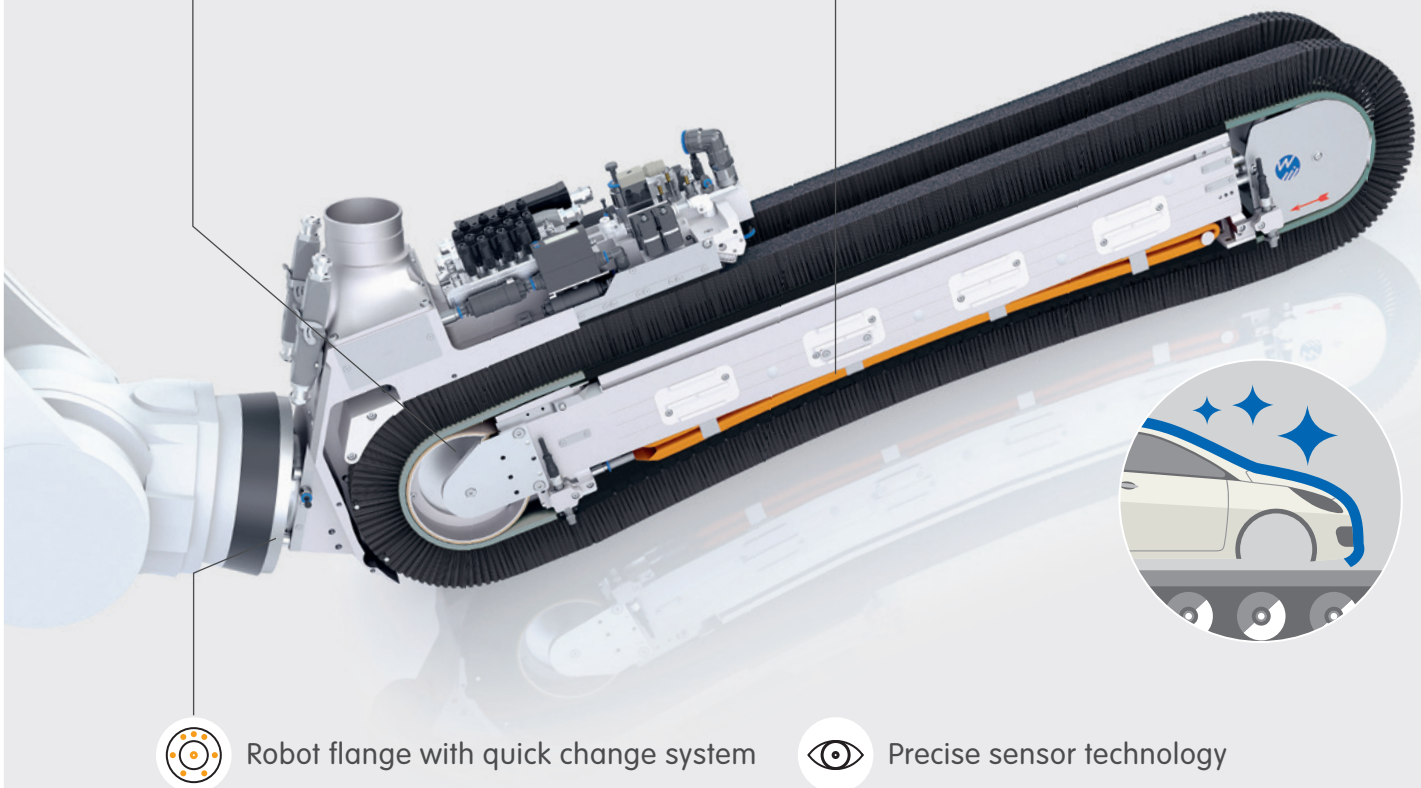
The Robot Sword Brush follows the contours of different types of bodyshells or exterior parts with precision thanks to accurate robot guidance. As a consequence, the cleaning results are very exact. During the cleaning of the bodyshell, areas with tacky seam sealer can be clearly defined and avoided. For this reason, hardening the PVC seams in a dryer prior to cleaning can be dispensed with. This saves enormous amounts of energy, time and costs. The Robot Sword Brush can clean all shapes of bodyshell. The linear brushes are mounted on a flexible buffer and adapt perfectly to curved surfaces. An integrated cleaning step utilising air technology also tackles recessed areas such as roof seams or recessed handles. The Robot Sword Brush features a space-saving footprint and can be integrated into the line without difficulty. Multiple Robot Sword Brushes may be required, depending on geometry and cycle time allowed.

## Compact hub drive

The powerful and durable hub motor is concealed, without protruding, close to the flange.

## Adaptable flexible buffer

The linear brushes are flexibly mounted on a pneumatically regulated buffer. The brushes adapt perfectly to the contours of the bodyshell.



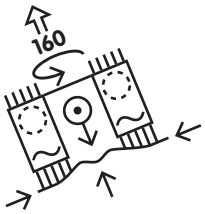
## Robot flange with quick change system

The robot flange can be adapted to fit all the usual types of robot in line with customer requirements. Attaching the module is trouble-free thanks to a pneumatic quick change device.

## Precise sensor technology

All the relevant process parameters are monitored or controlled. A bus system transmits the signals to process control.

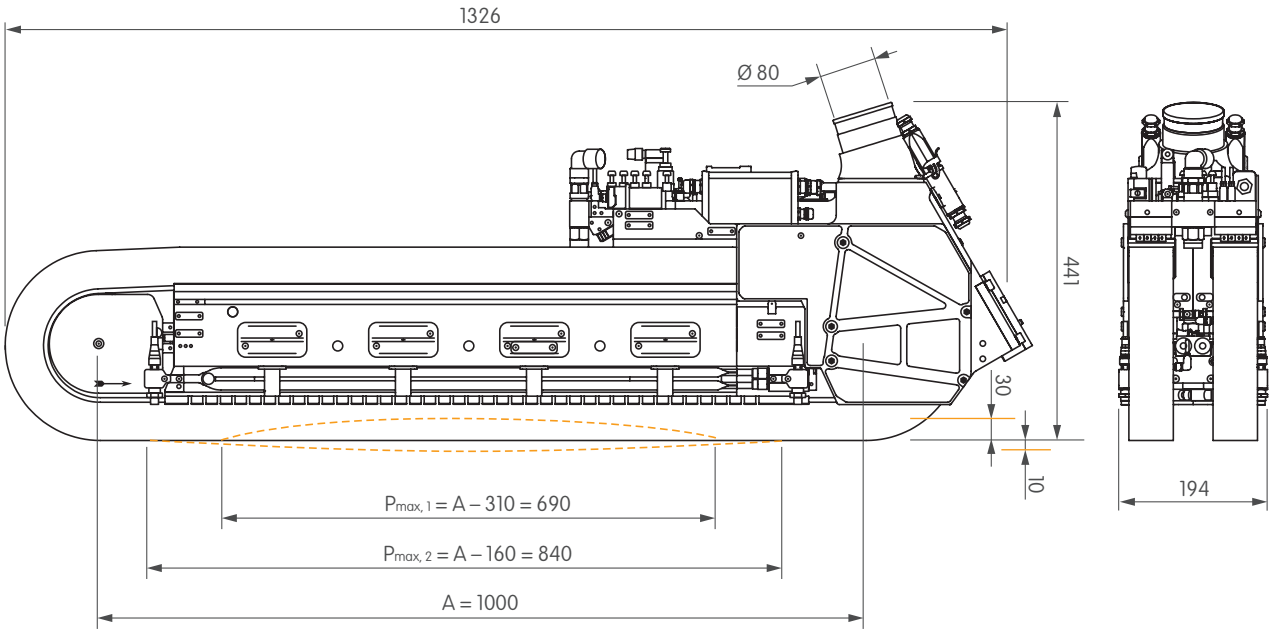
# Technical design and dimensions




Laura 160

**Robot Sword Brush Laura 160®** with
- Flexible buffer for uniform brush pressure
- Integrated Tornado Nozzles for cleaning using air technology
- Adaptable robot flange

**Ingromat® system** for micro-moistening, incl.
- Regulator and filter unit IR 160
- Central supply pump IS 12 / IS 14
- Storage container with radar sensor for liquid level monitoring




| | |
|---|---|
| A | Nominal width of the Sword Brush = centre to centre distance of the deflecting rollers |
| $P_{max,1}$ | Maximum cleaning width for convex surfaces |
| $P_{max,2}$ | Maximum cleaning width for concave surfaces |
| ------ | Flexible working area = –30 mm to +10 mm |

# Technical Data

| | |
|---|---|
| **Electrical details** | |
| Drive of Laura 160 | Hub drive; IP 54; stabilised 10 A power supply unit required<br>48 V DC; 10 A; 0.35 kW |
| Sensor system | 24 V DC; 4 A; 0.1 kW |
| **Pneumatic details** | |
| Compressed air quality | Purity classes compressed air ISO 8573-1:2010 [6:4:3] (at 20 °C; 1 bar)<br>filtered (CP ≤ 5 mg/m³), dry (pressure dew point ≤ 3 °C), oil-free (CO ≤ 1 mg/m³) |
| Compressed air connection | 1 x Ø 12 mm (Sword Brush);<br>1 x Ø 16 mm (Tornado Nozzles Janus 50 D);<br>6 bar |
| Compressed air consumption | 170 l/min (without activating Tornado Nozzles Janus 50 D)<br>1560 l/min (with Tornado Nozzles Janus 50 D activated) |
| **Fluidics** | |
| Ingromat-hose connection | Ø 6 mm |
| Ingromat-consumption | 0.5 l/h (adjustable: 0.4 – 0.8 l/h) |
| **Suction** | |
| Suction | Ø 80 mm; 600 m³/h |
| Operating parameters | min. –1000 Pa |
| **Linear Brush** | |
| Type of linear brush | Quadro L with sanded and rounded filament tips |
| Filament material | Polyamid 6.12 |
| Filament length | 50 mm |
| Filament-Ø | 0.2 mm |
| Features | plasma cleaned linear brush |

Exemplary values, the exact values can be found in the specifications.

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